

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

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# PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year)

2.7-05-2005

Applicant's or agent's file reference

E38553 KOH/J

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/NO 2005/000040

International filing date (day/month/year)

03.02.2005

Priority date (day/month/year)

11.02.2004

International Patent Classification (IPC) or both national classification and IPC

C10G 11/18

Applicant

Ellycrack AS et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further opinions, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/NO 2005/000040

**Box No. I      Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language, \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. **type of material**

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. **format of material**

- ☐ in written format  
☐ in computer readable form

c. **time of filing/furnishing**

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. **Additional comments:**

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Box No. II Priority

1. ☐ The following document has not yet been furnished:

☐ copy of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

The priority is considered valid.

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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The question whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application

☐ claims Nos. \_\_\_\_\_

because:

☐ the said international application, or the said claims Nos. \_\_\_\_\_  
relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 1  
are so unclear that no meaningful opinion could be formed (*specify*):

Present claim 1 relates to an extremely large number of possible processes. Support within the meaning of Article 6 PCT and / or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the processes claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful examination over the whole of the claimed scope is impossible.

.../...

☒ The claims, or said claims Nos. 1 are so inadequately supported  
by the description that no meaningful opinion could be formed.

☐ no international search report has been established for said claims Nos. \_\_\_\_\_

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

☐

has not been furnished

☐

does not comply with the standard

the computer readable form

☐

has not been furnished

☐

does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in the Annex C-bis of the Administrative Instructions.

☐ See Supplemental Box for further details.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX III

Consequently, the examination has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts related to the process in the figures 1-3. (None examples have been found).

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International application No.

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims		YES
	Claims	2-12	NO
Inventive step (IS)	Claims		YES
	Claims	2-12	NO
Industrial applicability (IA)	Claims	2-12	YES
	Claims	1	NO

2. Citations and explanations:

Reference is made to the following documents:

D1: WO 0047695

Document D1 comprises a catalytic cracking process, a reactor under the influence of a rotating fluidized bed catalyst and compressed gases and/or steam is injected in order to effect movement of the catalyst bed (See fig. 4).

D2: US5538623

Document D2 relates to an FCC process and apparatus operates with closed reactor cyclones and a catalyst stripper using H<sub>2</sub> or recycled stripper vapor for stripping gas (Fig. 1).

D3: US5234578

Document D3 comprises a fluidized catalytic cracking process utilizing a high temperature reactor (525 DEG C.) and directly transfers catalyst and hydrocarbons to a series of cyclone separators, the stripping of spent catalyst in a heated stripper zone for the recovery of additional hydrocarbon vapours, and the immediate quenching of a converted hydrocarbon feed upon leaving a cyclone separator raises the octane and product yield in an FCC process (Fig.1).

D4: US5348644

Process and apparatus for contacting a hydrocarbon feedstock with hot solid particles in a tubular reactor with a rising fluidized bed is described in document D4 (Fig. 4).

D5: US4708785

Heat balance in oil conversion unit can be controlled as a function of Conradson carbon of the feed, water added to the feed, hydrogen in the coke produced, CO<sub>2</sub>/CO ratio, etc. Preferably, riser outlet temperature can be controlled to less than about 538 DEG C (Fig 1).

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

The problem for heavy feedstock requires to overcome:

- Feed vaporisation - High concentration of polar molecules
- Presence of metals. (Description page 4 line 25).

The present claimed invention solves the problem by using two regenerators, mild oxidation of catalyst and temperatures between 450-600 °C in combination with low partial pressure, atomisation nozzles and a cyclone (See main components, page 10 line 5).

Documents D1 and D4 suggest the variation of the diameter in a riser (fig 4). Document D2 describes FCC processes with the main components as in the claimed invention for removed, cooled and condensed the heavy oils in a temperature of 650°F (claim 1) in the same manner as document D3 (temp=975°F). Document D5 suggest a temperature of 538°C and atomizing nozzle zone (claims 1-16).

Consequently, the subject matter of claims 2-12 are previously known and therefore lacks novelty and inventive step.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawing or on the question whether the claim are fully supported by the description, are made:

As explained below, some of the features in the processes claimed in 1-12 relate to a method of using the apparatus in the processes rather than clearly defining the processes in terms of its technical features, such features as:

- Temperature interval (in each step of the process)
- Pressure parameters.
- Ratio for gases/solids/catalysts.
- Diameter variation of riser.
- Flow velocity.

The intended limitations are therefore not clear from this claim, contrary to the requirements of Article 6 PCT in order to make a proper examination such parameters have been brought from the description (The processes have not been exemplified).

The term "thermodynamic" used in claims 1-12 is vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT).